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U. S. ARMY HELICOPTER ELECTRICAL  
SYSTEM RELIABILITY AND MAINTAINABILITY  
INVESTIGATION. VOLUME II. SUPPLEMENTAL  
DESIGN GUIDE

Clifford E. Nord

Systems Associates, Incorporated

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The report is presented in two volumes. Volume I gives a complete description of the investigation procedures and contains the conclusions and recommendations. This volume (Volume II) contains the revisions that are considered to be essential for incorporation in existing military specifications and standards to assure that reliability and maintainability are given adequate consideration for Army aircraft applications.

The reader is cautioned to use the recommendations contained in this volume with forethought, keeping in mind that, although R&M can be improved, the impact on life-cycle cost cannot be predicted. The user of this Supplemental Design Guide is also encouraged to use the recommended changes carte blanche in the absence of better guidance; however, he must realize that there can be no substitute for complete awareness and understanding of each requirement stipulated during the preparation of aircraft system specifications or electrical system component design or test requirements.

The Project Engineer for this effort was Mr. Richard I. Adams,  
Military Operations Technology Division.

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number) This volume is a result of the investigation performed in Volume I "Document Deficiency Analysis" of this report, which identifies deficiencies in military specifications and standards that have impact in reliability and maintainability of U.S. Army helicopters.  This volume provides supplementary information to each deficient document re- lating to design requirements, qualification testing, and quality assurance. The supplementary information to offset the most prevalent deficiencies were		

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addressed to helicopter mission design requirements which relate to environmental conditions, reliability and maintainability programs, and safety. Environmental testing and reliability and maintainability requirements were also addressed.

This supplementary information may be used for future helicopter procurement purposes, or may eventually be incorporated into existing aircraft electrical systems documents.

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## SUMMARY

This investigation was performed to identify deficiencies in U.S. Army helicopter electrical system documentation. The scope of the effort was constrained to documentation pertinent to three classes of requirements which have impact on the reliability and maintainability of helicopters: (1) design requirements; (2) qualification test requirements, procedures, and practices; (3) quality assurance provisions and requirements. The results of this investigation are contained in two volumes: Volume I - Document Deficiency Analysis, and Volume II - Supplemental Design Guide.

The first major task was to analyze the electrical systems contained in the current inventory of U.S. Army helicopters. Five models were selected as representative of the total family of helicopters: AH-1G, UH-1D/H, OH-6A, CH-47A, and CH-54A. The equipments that comprise the electrical system of these helicopters were then aggregated into six functional categories: alternating current, battery, electrical controls, external power, direct current, and load circuit.

Within each of the six functional groups, component trees were developed to establish the dominant/subordinate relationships among them. This was followed by the development of a baseline electrical system in order to provide a composite overview of present Army helicopter design philosophies.

The next major task was to collect and classify over 200 documents, of which 124 were found to be pertinent. Applicable documents were then evaluated against a structured set of deficiency criteria and the potential degree of impact on reliability and maintainability was assessed. Those documents containing deficiencies with a potential major impact were then reevaluated to identify the alternative actions that the Army might take to reduce the impact and then to select the best of the alternative.

This volume, entitled "Supplemental Design Guide (SDG)", provides supplementary information to each deficient document relating to design requirements, quality assurance, and testing. The supplementary information to offset the most prevalent deficiencies is addressed to helicopter mission design requirements which relate to environmental conditions, reliability and maintainability programs, and safety. Environmental testing and reliability and maintainability demonstration requirements are also addressed.

This supplementary information may be used for future helicopter procurement purposes, or may eventually be incorporated into existing electrical system related documents.

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## INTRODUCTION

The supplemental design guide (SDG) establishes the baseline electrical system documentation tree as well as the reliability and maintainability related design, quality assurance, and testing guideline requirements for U.S. Army helicopter electrical systems.

Specifications were applied to the baseline electrical system described in Volume I, resulting in the baseline electrical system documentation tree. This documentation tree is intended to:

1. Establish the relationship of components within a circuit.
2. Logically group components to a particular circuit.
3. Identify the governing specifications of both circuits and components.

The SDG information presented in this volume has a threefold purpose:

1. To aid the procuring agency representative in choosing the applicable documents required to design helicopter electrical systems and/or its constituent component parts using the documentation tree.
2. To aid the designers in selecting the proper documents during the design, development, qualification, and production of the applicable electrical system components.
3. To ensure that all design, qualification testing, and quality assurance requirements adequately consider the reliability, maintainability, and availability requirements delineated by the detailed design and system specifications.

This supplemental information is presented for each nonexistent or inadequate documentation requirement noted in the document deficiency analysis, reference Volume I of this report. This information is intended to supplement the existing military specifications and related documents, detailed design specifications, and system specifications. It is also anticipated that this information may be appended to procurement specifications prepared by Government contractors for their proposed suppliers.

Incorporation of these changes will provide assurances that the potential adverse impacts on the reliability, maintainability, and availability, due to document deficiencies, have been mitigated to the greatest extent feasible, considering the overall operational requirements of the Army helicopter.

## ELECTRICAL SYSTEM DOCUMENTATION TREE

The electrical system documentation tree presented on the following page is a graphic display of the various component levels within the composite electrical system. The components are grouped with respect to their individual functions within a particular subsystem, and the interface relationship between subsystems is defined. The documents noted on this tree are of the following two major categories:

1. System, General Requirements for
2. Component, Specific Requirements for

The system documents are used as guidelines for the performance requirements of the specific system being designed. The constituent system components are also governed by these parameters. These documents refer to the operational parameters anticipated by in-service use. Although each document is directed toward a particular type or class of operation, there may be a redundancy between documents covering a given generic class.

The electrical equipment documents delineate specific performance requirements of the item being specified. Some generic classes perform more than one function in the electrical system.

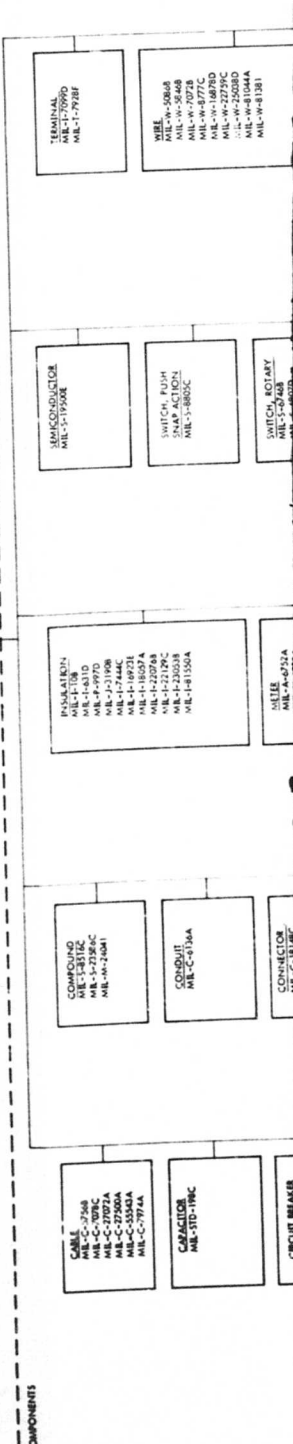
As an example, MIL-P-81653 (AS), "Power Controller, Solid State, General Specification for", appears in several of the circuits shown on the documentation tree. The title itself does not always indicate the operational application of the equipment specified.

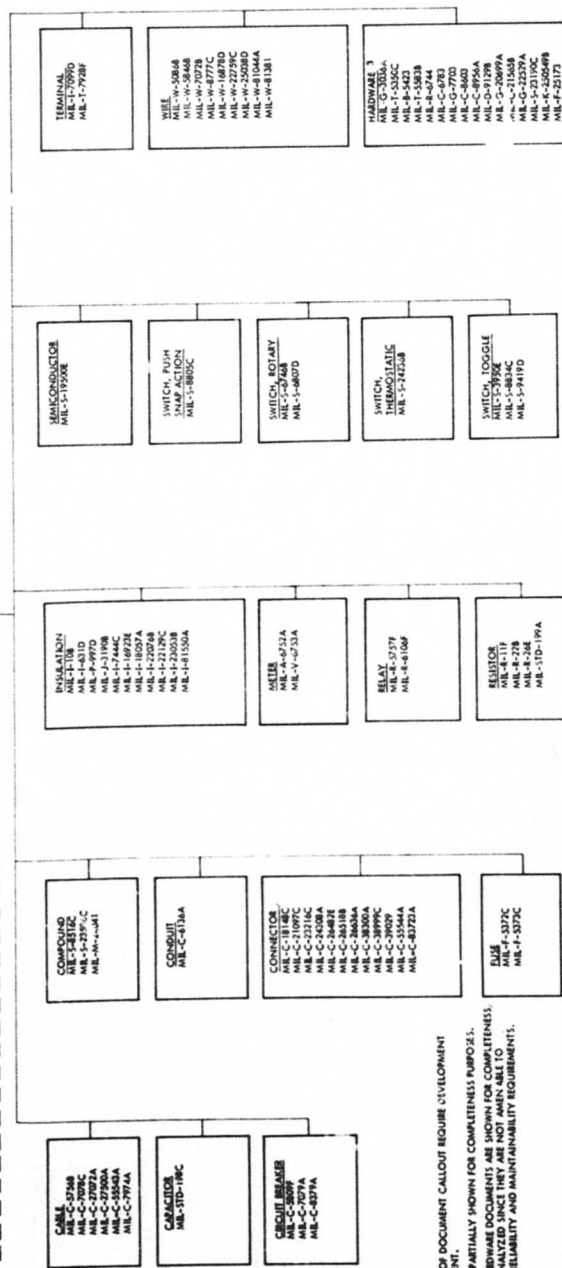
One characteristic, especially applicable to electrical component parts, is that the documents do not readily identify with aircraft application by title, scope, or intended use. For example, MIL-W-16878D, "Wire, Electrical, Insulated, High Temperature", seems intended for shipboard use, but it is known to have application in aircraft and helicopter procurement design.

The documentation tree can be used to:

- Establish relationship of components within a system
- Logically group components to a particular system
- Identify the governing documents of both systems and components

Components that appear within a general group heading are dependent upon the requirements of the governing documents which appear at higher levels of the tree. Documents which appear beneath a circuit





NOTES:

1. BLOCKS DIVIDED BY DOCUMENT CALLOUT REQUIRE DEVELOPMENT OF NEW DOCUMENT.
2. LOAD CIRCUIT IS PARTIALLY SHOWN FOR COMPLETENESS PURPOSES.
3. TESTING AND HARDWARE DOCUMENTS ARE SHOWN FOR COMPLETENESS, BUT WERE NOT ANALYZED SINCE THEY ARE NOT AMENABLE TO IMPOSITION OF RELIABILITY AND MAINTAINABILITY REQUIREMENTS.

# Electrical System Documentation Tree.

heading are pertinent to and governed by that group system specifications. The equipment and component level documents are grouped by their generic classification within that particular circuit.

Documents that are shown on the documentation tree but are not included in the SDG due to their adequacy are as follows:

- MIL-STD-704A, Notice 2, 5 May 1970, "Electric Power, Aircraft, Characteristics and Utilization of"
- MIL-E-6051D, Amendment 1, 5 July 1968, "Electromagnetic Compatibility Requirements, Systems"
- MIL-E-7016D (ASG), Revised 15 April 1965, "Electric Load and Power Source Capacity, Aircraft, Analysis of"
- MIL-STD-198C, Notice 7, 29 September 1972, "Capacitor, Selection and Use of"
- MIL-STD-199A, Notice 8, 16 October 1972, "Resistor, Selection and Use of"

Testing and aircraft piece part hardware, i.e., grommets, boots, clamps, etc., documents are included in the documentation tree for completeness of the electrical system. These documents are not amenable to the imposition of reliability and maintainability requirements, therefore they were not analyzed as part of this study.

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## ELECTRICAL SYSTEM DOCUMENT IMPROVEMENTS

The documents governing electrical systems are as follows:

1. MIL-B-5087B (ASG), Amendment 2, dated 31 August 1970, "Bonding, Electrical, and Lightning Protection for Aerospace Systems"
2. MIL-W-5088E, dated 28 March 1972, "Wiring, Aircraft, Selection and Installation of"
3. MIL-E-7080B, Amendment 3, dated 29 April 1968, "Electric Equipment, Aircraft, Selection and Installation of"
4. MIL-E-25499C, dated 23 March 1970, "Electrical Systems, Aircraft, Design and Installation of, General Specification for"

### MIL-B-5087B

The SDG information for this document is as follows: .

1. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

2. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as stated in the contract or in the end-item/system development description or specification.

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements

and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

4. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

5. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

MIL-E-7080B

The SDG information for this document is as follows:

1. Paragraph 3.1.7.1.1, add the following to the existing statement:

Requirements. Supporting references are contained in MIL-STD-889.

2. Paragraph 3.1.8.1, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as

reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.1.8.2, perform the following:

Environmental Conditions. Delete MIL-E-5272 and replace with MIL-STD-810.

4. Paragraph 3.1.8.5, perform the following:

Electromagnetic Interference. Delete MIL-I-6181 and replace with MIL-STD-461A.

5. Paragraph 3.1.8.7.4, delete and replace with the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

6. Paragraph 3.2.12.6, make the following changes:

Requirements. Delete MIL-S-6743 and MIL-S-6744 and replace with MIL-S-8805.

7. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

8. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of

MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

9. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

10. Paragraph 3.x, add the following:

Standard Components. Standard AN, JAN, or MS components shall be used in preference to nonstandard components wherever they will perform the function required by the system.

11. Paragraph 4.5, delete and replace with the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

12. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

The SDG information for this document is as follows:

1. Paragraph 3.1.3, delete and replace with the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

2. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustment and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

3. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces

- g. Acceleration
- h. Sand particles
- i. Fungus growth

4. Paragraph 3.x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

5. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.



## ALTERNATING CURRENT CIRCUIT DOCUMENT IMPROVEMENTS

### GENERATORS, BRUSH

The documents governing alternating current, brush-type generators are as follows:

1. MIL-G-6099A (ASG), Revised March 25, 1957; Amendment 1 dated May 15, 1958, "Generators and Regulators, Air-Cooled, A-C, Aircraft, General Specification for"
2. MIL-G-6340A (USAF), Revised May 15, 1953; Amendment 2 dated July 12, 1957, "Generator, Alternating Current, Aircraft, Type C-3"
3. MIL-G-21075 (AER), Revised September 13, 1957; Amendment 1 dated March 12, 1958, "Generating System, Single Generator. Constant Frequency, Alternating Current, Aircraft, General Specification for"
4. MIL-G-25704A (USAF), Revised June 13, 1963, "Generator System, Alternating Current, Aircraft, General Specification for"

### MIL-G-6099A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration

h. Sand particles

i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

10. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-G-6340A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

3. Paragraph 3.x, add the following:

Standard Components. Standard AN, JAN, or MS components shall be used in preference to nonstandard components wherever they will perform the function required by the system.

4. Paragraph 3.25, delete and add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

5. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

6. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

7. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

8. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

9. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

10. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

11. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

12. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

13. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without

formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

14. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

15. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

16. Paragraph 4.x, add the following:

Component Sampling. Sampling shall be accomplished in accordance with the procedures established in MIL-STD-105.

MIL-G-21075

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following

environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

3. Paragraph 3.x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

4. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

5. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary



warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

6. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

7. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

8. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

9. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering

design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

10. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

11. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

12. Paragraph 4. x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

13. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for

standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4.x, add the following:

Rejection and Retests. Items failing initial qualification tests, retests, or random sampling tests must be analyzed

to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

9. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

## GENERATORS, BRUSHLESS

The documents governing brushless generators are as follows:

1. MIL-G-21480A (AS), Revised 30 November 1970, "Generator System, 400 Hertz, Alternating Current, Aircraft, General Specification for"
2. MIL-E-23001A (AS), Revised 1 July 1968, "Electric Generating System, Variable Speed, Constant Frequency, Aircraft, General Specification for"

### MIL-G-21480A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-G-23001A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration



- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring agency.

3. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly,

reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

6. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

8. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

9. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

11. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### INVERTERS, PRIMARY

The documents governing primary inverters are as follows:

1. MIL-I-7032F, Supplement 1, dated 14 October 1970, "Inverter, Aircraft, General Specification for"
2. MIL-I-27273A, Amendment 3, dated 12 March 1970, "Inverter, Power, Static, General Specification for"

#### MIL-I-7032F

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration

- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

10. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### MIL-I-27273A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

6. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.



9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### INVERTER CONTROL

The document governing inverter controls is as follows:

MIL-C-6521 (USAF), Amendment 2, dated 8 September 1959,  
"Control, Inverter, Changeover, Type A-2"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the

system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering

design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

10. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### REGULATOR, SUPERVISORY AND REGULATORY

The document governing regulators is as follows:

MIL-R-6339 (USAF), Amendment 4 dated 4 December 1959,  
"Regulator, Voltage, Type L-4"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

3. Paragraph 3.x, add the following:

Standard Components. Standard AN, JAN, or MS components shall be used in preference to nonstandard components wherever they will perform the function required by the system.

4. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

5. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

6. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

7. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

8. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

9. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

10. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

11. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

12. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

13. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

14. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

15. Paragraph 4.x, add the following:

Component Sampling. Sampling shall be accomplished in accordance with the procedures established in MIL-STD-105.

#### RELAY, MONITORING BUS CONTACTOR

The documents governing monitoring bus relays are as follows:

1. MIL-R-6466B, Revised 28 July 1965, "Relay, Armature, Exciter Protection, Type A-1"
2. MIL-R-7611 (USAF), Amendment 1 dated 5 April 1957, "Relay, Armature, Type MA-1"
3. MIL-R-7649A (ASG), Revised 21 May 1953, "Relay, Armature, Exciter-Control, 115/200 Volt, 3-Phase, 4-Wire, 400-Cycle, Type H-1"
4. MIL-R-8373A (ASG), Revised 8 October 1954, "Relay, Current, Type D-1 (115-Volts, 400-Cycle, Single Pole)"
5. MIL-P-81653 (AS), Supplement 1 dated 17 November 1969, "Power Controller, Solid-State, General Specification for"

#### MIL-R-6466B

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces



- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instruction used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4.x, add the following:

Test Witness. Prior to conducting contractually required tests where the nature of the test or the inherent design of critical components require strict control, the procuring activity shall be notified so that test witnesses can be assigned. Random sampling concepts should be employed on other less critical tests. The component manufacturer test witnesses should prepare a report at the conclusion of each test series and forward the results of these tests to the procuring activity.

9. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

MIL-R-7611

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the

system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

9. Paragraph 4.x, add the following:

Test Witness. Prior to conducting contractually required tests where the nature of the test or the inherent design of critical components require strict control, the procuring activity shall be notified so that test witness can be assigned. Random sampling concepts should be employed on other less critical tests. The component manufacturer test witnesses should prepare a report at the conclusion of each test series and forward the results of these tests to the procuring agency.

10. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

11. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

12. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

MIL-R-7649A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration

- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

9. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring



agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

10. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

11. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

MIL-R-8373A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range

- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can

easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

10. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

11. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

MIL-P-81653 (AS)

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range

- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

3. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

7. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

10. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

#### TRANSFORMER, AUTO

The document governing auto-transformers is as follows:

MIL-T-9219 (USAF), Amendment 2, dated 4 June 1965, "Transformer, Power, Auto-transformers and Step Down, 400 Cycle"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity

- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve



the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied

by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

9. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

11. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

#### TRANSFORMER, CURRENT

The documents governing current transformers are as follows:

1. MIL-T-5383 (USAF), Amendment 1 dated 9 April 1954, "Transformer, Current, Type D-1"
2. MIL-T-7210 (USAF), Amendment 1 dated 5 May 1958, "Transformer, Current, Type D-2"

MIL-T-5383

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve

the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principle shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

10. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

11. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

MIL-T-7210

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

9. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

10. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.



- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

11. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

## BATTERY CIRCUIT DOCUMENT IMPROVEMENTS

### BATTERIES

The documents governing batteries are as follows:

1. MIL-B-6146, Revised 15 May 1950, "Batteries, Storage, Shielded, General Specification for"
2. MIL-B-6428A (USAF), Revised 28 October 1969, "Batteries, Lead Storage, Integrally Shielded, Lead-Acid Type, General Specification for"
3. MIL-B-8565G (AS), Revised 9 July 1971, "Batteries and Cells, Storage, Aircraft"
4. MIL-B-26220C (USAF), Revised 30 March 1964, Amendment 2 dated 18 January 1971, "Batteries, Storage, Aircraft, Nickel-Cadmium, General Specification for"

### MIL-B-6146

The SDG information for this document is as follows:

1. Paragraph 3.3, perform the following:

Interchangeability. Delete MIL-D-5028 and replace with MIL-STD-100.

2. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces

- g. Acceleration
- h. Sand particles
- i. Fungus growth

3. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

The SDG information for this document is as follows:

1. Paragraph 3.11, delete and replace with the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

2. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

3. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### MIL-B-8565G

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces

- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

3. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative



human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

- o. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-B-26220C

The SDG information for this document is as follows:

1. Paragraph 3.5.8, delete and replace with the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity

- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring

specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

## EXTERNAL POWER CIRCUIT DOCUMENT IMPROVEMENTS

### RECEPTACLES

The document governing receptacles is as follows:

MIL-C-7974A, Notice 1, dated 15 June 1967, "Cable Assemblies, Plugs and Receptacles, External Power"

The SDG information for this document is as follows:

1. Paragraph 3.3, make the following change:

Design and Construction. Delete MS33586 and replace with MIL-STD-889A.

2. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

3. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

4. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

5. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

6. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintainance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

7. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

8. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

9. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

10. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

11. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

12. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specifications.

#### MONITOR, BUS CONTACTOR RELAY

The documents governing monitors are as follows:

1. MIL-E-24021C, Revised 2 April 1965, "Electric Power Monitors, External, Aircraft"
2. MIL-P-81653 (AS), Supplement 1 dated 17 November 1969, "Power Controller, Solid State, General Requirements for"

#### MIL-E-24021C

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range



- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

3. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

4. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

5. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall

helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

6. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

7. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

8. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

9. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

11. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-P-81653 (AS)

The SDG information for this document is presented on page 57.

## DIRECT CURRENT CIRCUIT DOCUMENT IMPROVEMENTS

### GENERATOR - STARTER

The document governing generator-starters is as follows:

MIL-G-6162B, Revised 15 February 1972, "Generators and Starter-Generators, Electric, Direct Current, Nominal 30-Volts, Aircraft, General Specification for"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious

voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

4. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

6. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### GENERATOR, BRUSH

The document governing brush-type generators is as follows:

MIL-G-6162B, Revised 15 February 1972, "Generators and Starter-Generators, Electric, Direct Current, Nominal 30-Volts, Aircraft, General Specification for"

The SDG information for this specification is the same as the preceding document presentation.

#### CONVERTER, TRANSFORMER/RECTIFIER

The documents governing converters are as follows:

1. MIL-C-7115D, Supplement 1 dated 10 March 1970, "Converters, Aircraft, General Specification for"
2. MIL-P-26517A (USAF), Amendment 5 dated 13 October 1971, "Power Supply, Transformer-Rectifier, Aircraft, General Specification for"

#### MIL-C-7115D

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

8. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-P-26517A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate



precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

8. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### REGULATOR, VOLTAGE

The documents which govern direct current voltage regulators are as follows:

1. MIL-R-6809, Amendment 1 dated 14 December 1965, "Regulator, Voltage, 30-Volt, Direct Current, Generator, General Specification for"
2. MIL-R-23761 (WEP), dated 7 May 1963, "Regulator, Voltage, Static, 28-Volt, Direct Current, Generator, General Specification for"

MIL-R-6809

The SDG information is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

3. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be so constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

6. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

8. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

10. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

11. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

MIL-R-23761

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration

- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

3. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall

helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

6. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

8. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

10. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### RELAY, BUS CONTROL

The documents governing bus control relays are as follows:

1. MIL-R-6463A, Revised 31 December 1952, "Relay, Generator Equalizer Bus, Type A-1"
2. MIL-P-81653 (AS), Supplement 1 dated 17 November 1969, "Power Controller, Solid-State, General Specification for"

#### MIL-R-6463A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration



h. Sand particles

i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective

performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

9. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

10. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

11. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

MIL-P-81653 (AS)

The SDG information for this document is presented on page 57.

RELAY, OVERVOLTAGE

The documents governing overvoltage relays are as follows:

1. MIL-C-5026E, Revised 18 January 1971, "Cutout Relay, Engine Generator"
2. MIL-P-81653 (AS), Supplement 1 dated 17 November 1969, "Power Controller, Solid-State, General Specification for"

MIL-C-5026E

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following

environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.1, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

#### MIL-P-81653 (AS)

The SDG information for this document is presented on page 57.

#### RELAY, REVERSE CURRENT

The document governing reverse current relays is as follows:

MIL-R-9162, Revised 29 September 1953, "Relay, Generator, Reverse Current, 120-Volt DC, 250 Amperes, Type Q-1"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration

- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.



9. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

11. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

## LOAD CIRCUIT DOCUMENT IMPROVEMENTS

### ACTUATOR, TRIM

The documents that govern trim actuators are as follows:

1. MIL-A-8064B (USAF), Revised 22 January 1970, "Actuators and Actuating Systems, Aircraft, Electromechanical, General Requirements for"
2. MIL-A-23622 (WEP), dated 15 April 1963, "Actuator, Aircraft, Electromechanical, Linear, Direct Current"

### MIL-A-8064B

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere

- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

3. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

4. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

5. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

6. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

MIL-A-23622

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces

- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

8. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

9. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

#### MOTOR, ALTERNATING CURRENT

The document governing alternating current motors is as follows:

MIL-M-7969C, dated 25 May 1965, "Motor, Alternating Current, 400-Cycle, 115/200-Volt System, Aircraft, General Specification for"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration

- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.



5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4.x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

8. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### MOTOR, DIRECT CURRENT

The document governing direct current motors is as follows:

MIL-M-8609B, dated 26 July 1965, "Motors, Direct-Current, 28-Volt System, Aircraft, General Specification for"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration

- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, down-time, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

## COMPONENT PARTS DOCUMENT IMPROVEMENTS

### CABLE

The documents governing cables are as follows:

1. MIL-C-5756B, Amendment 4 dated 9 June 1972, "Cable and Wire, Power, Electric, Portable"
2. MIL-C-7078C, Supplement 1 dated 9 August 1971, "Cable, Electric, Aerospace Vehicle, General Specification for"
3. MIL-C-7974A, Notice 1 dated 15 June 1967, "Cable Assemblies, Plugs and Receptacles, External Power"
4. MIL-C-27072A, Supplement 1C dated 7 August 1969, "Cable, Special Purpose, Electrical, Multiconductor"
5. MIL-C-27500A (USAF), Amendment 2 dated 24 February 1971, "Cable, Electrical, Shielded and Unshielded, Aircraft and Missile"
6. MIL-C-55543A, Supplement 1 dated 6 October 1971, "Cable, Electrical, Flat, Multiconductor, Flexible, Unshielded"

### MIL-C-5756B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### MIL-C-7078C

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the



required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these

items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-C-7974C

The SDG information for this document is found on page 82.

MIL-C-27072A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500

regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel,

and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### MIL-C-27500A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering

requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-C-55543A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary

warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

9. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of



these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

## CIRCUIT BREAKERS

The documents governing circuit breakers are as follows:

1. MIL-C-5809F, Supplement 1 dated 27 April 1972, "Circuit Breakers, Trip-Free, Aircraft, General Specification for"
2. MIL-C-7079A (USAF), Amendment 1 dated 23 March 1967, "Circuit Breaker, Non-Trip-Free, General Specification for"
3. MIL-C-8379A (ASG), Amendment 4 dated 26 December 1957, "Circuit Breaker, Electrically Operated, 3-Pole, Type A-1"

## MIL-C-5809F

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components

shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and

maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

9. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

#### MIL-C-7079A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

9. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

MIL-C-8379A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training

time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

9. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test

procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not commence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

### COMPOUND

The documents governing compounds are as follows:

1. MIL-S-8516C, Amendment 2 dated 21 June 1968, "Sealing Compound, Synthetic Rubber, Electric Connectors and Electric Systems, Accelerator Required"
2. MIL-S-23586C, Amendment 2 dated 12 June 1972, "Sealing Compound, Electrical, Silicone Rubber, Accelerator Required"
3. MIL-M-24041 (SHIPS), Amendment 3 dated 15 March 1971, "Molding and Potting Compound, Chemically Cured, Polyurethane (Polyether-Based)"

### MIL-S-8516C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3. x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.



3. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

6. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering

requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

9. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

MIL-S-23586C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training

time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

6. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-M-24041

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed

maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

## CONDUIT

The document governing electrical conduit is as follows:

MIL-C-6136A, Revised 10 December 1965, "Conduit, Electrical, Flexible, Shielded, Aluminum Alloy for Aircraft Installation"

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing.

Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and



maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

### CONNECTORS

The documents governing electrical connectors are as follows:

1. MIL-C-18148C, Amendment 2 dated 21 April 1972, "Connector, Plug, Electrical, Quick-Disconnect, Battery"
2. MIL-C-21097C, Amendment 2 dated 30 May 1972, "Connector, Electrical, Printed Wiring Board, General Purpose, General Specification for"
3. MIL-C-23216C (Navy), Supplement 1A dated 22 March 1972, "Contact, Electric Connector, General Specification for"
4. MIL-C-24308A, Amendment 3 dated 15 May 1972, "Connector, Electric, Rectangular, Miniature, Polarized Shell, Rack and Panel, General Specification for"
5. MIL-C-26482E, Revised 29 May 1969, "Connector, Electric, Circular, Miniature, Quick-Disconnect, Environment Resisting"
6. MIL-C-26518B (USAF), Amendment 1 dated 23 June 1972, "Connector, Electrical, Miniature, Rack and Panel, Environment Resisting, 200°C Ambient Temperature"
7. MIL-C-26636A (USAF), Revised 21 September 1961, "Contacts, Crimp Style, For Electrical Connectors"
8. MIL-C-38300A (USAF), Supplement 1B dated 15 December 1970, "Connector, Electrical, Circular, Multicontact, High Environment, Quantitative Reliability, General Requirements for"

9. MIL-C-38999C (USAF), Interim Amendment 2 dated 7 April 1972, "Connectors, Electrical, Circular, Miniature, High Density, Quick-Disconnect, Environment Resistant, Removable Crimp Contacts"
10. MIL-C-39029, Amendment 2 dated 6 April 1972, "Contacts, Electric, General Specification for"
11. MIL-C-55544A, Supplement 1 dated 25 June 1971, "Connector, Electrical, Environment Resistant, For Use With Flexible Flat Conductor Cable and Round Wire, General Specification for"
12. MIL-C-83723A (USAF), Amendment 1 dated 30 June 1972, "Connector, Electrical, Circular, Environment Resisting, General Specification for"

MIL-C-18148C

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which

are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

3. Paragraph 3. x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be **uniformly high and shall not depreciate** from the level demonstrated during the preproduction tests.

4. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

5. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

6. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

7. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

8. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

9. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

10. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

11. Paragraph 4. x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

12. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

13. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

MIL-C-21097C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component

operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

MIL-C-23216C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by



personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP)

packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

MIL-C-24308A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked

tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

6. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

MIL-C-26482E

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

9. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

#### MIL-C-26518B

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being

accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-C-26636A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and



information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-C-38300A

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

10. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

MIL-C-38999C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be

in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and

recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### MIL-C-39029

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically

interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training



time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-C-55544A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The contractor shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Test Witness. Prior to conducting contractually required tests where the nature of the test or the inherent design of critical components require strict control, the procuring activity shall be notified so that test witnesses can be assigned. Random sampling concepts should be employed on other less critical tests. The component manufacturer test witnesses should prepare a report at the conclusion of each test series and forward the results of these tests to the procuring activity.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

10. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

#### MIL-C-83723A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being

accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Test Witness. Prior to conducting contractually required tests where the nature of the test or the inherent design of critical components require strict control, the procuring activity shall be notified so that test witnesses can be assigned. Random sampling concepts should be employed on other less critical tests. The component manufacturer test witnesses should prepare a report at the conclusion of each test series and forward the results of these tests to the procuring activity.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

10. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring

activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

### FUSE

The documents governing fuses are as follows:

1. MIL-F-5372C(ASG), Amendment 2 dated 20 April 1965, "Fuse, Current Limiter Type, Aircraft"
2. MIL-F-5373C(ASG), Revised 24 January 1964, "Fuseholders, Block Type, Aircraft"

### MIL-F-5372C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being

accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.



7. Paragraph 4. x, add the following:

Test Witness. Prior to conducting contractually required tests where the nature of the test or the inherent design of critical components require strict control, the procuring activity shall be notified so that test witnesses can be assigned. Random sampling concepts should be employed on other less critical tests. The component manufacturer test witnesses should prepare a report at the conclusion of each test series and forward the results of these tests to the procuring activity.

8. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

9. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-F-5373C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed

maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECF) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval

from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

## INSULATION

The documents governing insulation are as follows:

1. MIL-I-10B, Amendment 1 dated 10 April 1967, "Insulating Compound, Electrical, Ceramic, Class L"
2. MIL-I-631D, Amendment 5 dated 20 June 1968, "Insulation, Electrical, Synthetic-Resin Composition, Nonrigid"
3. MIL-P-997D, Amendment 2 dated 14 June 1968, "Plastic Material, Laminated, Thermosetting, Electrical Insulation, Sheets, Glass, Cloth, Silicone Resin"
4. MIL-I-3190B, Amendment 2 dated 2 March 1964, "Insulation Sleeving, Electrical, Flexible, Treated"

5. MIL-I-7444C, Amendment 3 dated 22 September 1971, "Insulation Sleeving, Electrical, Flexible"
6. MIL-I-16923E, Revised 19 July 1963, "Insulating Compound, Electrical, Embedding"
7. MIL-I-18057A, Interim Amendment 2 dated 21 May 1965, "Insulation Sleeving, Electrical, Flexible, Glass Fiber, Silicone Rubber Treated"
8. MIL-I-22076B, Revised 5 August 1963, "Insulation Tubing, Electrical, Nonrigid, Vinyl, Very Low Temperature Grade"
9. MIL-I-22129C, Amendment 1 dated 18 February 1965, "Insulation Tubing, Electrical, Polytetrafluoroethylene Resin, Nonrigid"
10. MIL-I-23053B, Amendment 3 dated 24 March 1970, "Insulation Sleeving, Electrical, Heat Shrinkable, General Specification for"
11. MIL-I-81550A, Interim Amendment 1 dated 9 March 1970, "Insulating Compound, Electrical, Embedding, Reversion Resistant Silicone"

MIL-I-10B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in

accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

6. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

#### MIL-I-631D

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary

warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.



6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-P-997D

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / ~~flight hour~~ required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 4.x, add the following:

Test Witness. Prior to conducting contractually required tests where the nature of the test or the inherent design of critical components require strict control, the procuring activity shall be notified so that test witnesses can be assigned. Random sampling concepts should be employed on other less critical tests. The component manufacturer test witnesses should prepare a report at the conclusion of each test series and forward the results of these tests to the procuring activity.

5. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-I-3190B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3. x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship

shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

3. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

6. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training

time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

9. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-I-7444C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed

maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

6. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

5. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-I-16923E

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3. x, add the following:

Workmanship. Workmanship shall be sufficient to insure proper operation and to meet any specified service life of the systems and components. The quality of the workmanship shall be uniformly high and shall not depreciate from the level demonstrated during the preproduction tests.

3. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and



information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

6. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-I-18057A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4.x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test

procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-I-22076B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering

requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Component Sampling. Sampling shall be accomplished in accordance with the procedures established in MIL-STD-105.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

10. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

MIL-I-22129C

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter.

The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.



8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-I-23053B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Identification of Product. Equipment, assemblies, and parts shall be marked for identification in accordance with MIL-STD-130.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test

procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-I-81550A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary

warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

6. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### METERS

The documents governing meters are as follows:

1. MIL-A-6752A(ASG), Amendment 3 dated 3 March 1958, "Ammeter, Voltmeters, and Loadmeters, Direct Current"
2. MIL-V-6753A, Amendment 2 dated 24 November 1958, "Voltsmeters, 0-150 Volt, 330 to 1200 Cycles, Alternating Current"

#### MIL-A-6752A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-V-6753A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed



maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 3.x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4.x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### RELAY

The documents governing relays are as follows:

1. MIL-R-5757F, Amendment 3 dated 28 January 1972, "Relays, Electrical (For Electronic and Communication Type Equipment), General Specification for"
2. MIL-R-6106F(ASG), Amendment 1 dated 27 January 1970, "Relays, Electric, General Specification for"

#### MIL-R-5757F

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Environmental Conditions. The item shall be capable of satisfactory operation when subjected to the following environmental conditions as specified in the detailed specification of the procuring agency:

- a. Temperature range
- b. Relative humidity
- c. Altitude range
- d. Vibration
- e. Exposure to salt-sea atmosphere
- f. Shock forces
- g. Acceleration
- h. Sand particles
- i. Fungus growth

2. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

3. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

4. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

5. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

6. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

8. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

9. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4. x, add the following:

Environmental Testing. Equipment designed for helicopters shall be subjected to environmental testing in accordance with MIL-STD-810. The specific test parameters shall be in accordance with the applicable design specification.

11. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

12. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

#### MIL-R-6106F

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

6. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

7. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

8. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

## RESISTOR

The documents governing resistors are as follows:

1. MIL-R-11F, Revised 17 April 1967, "Resistors, Fixed, Composition (Insulated), General Specification for"
2. MIL-R-22B, Amendment 2 dated 10 September 1964, "Resistors, Variable, Wire-wound (Power Type), General Specification for"
3. MIL-R-26E, Supplement 1 dated 11 July 1967, "Resistors, Fixed, Wire-wound (Power Type), General Specification for"

## MIL-R-11F

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.



4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval

from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-R-22B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary

warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-R-26E

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by

personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and

maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

## SEMICONDUCTOR

The document governing semiconductor devices is as follows:

MIL-S-19500E, Amendment 3 dated 23 October 1970, "Semiconductor Devices, General Specification for"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being

accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4.x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.



7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### SWITCH, PUSH (SNAP ACTION)

The document covering push switches is as follows:

MIL-S-8805C, Supplement 1A dated 22 May 1972, "Switches and Switch Assemblies, Sensitive, and Push (SNAP ACTION), General Specification for"

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary

warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### SWITCH, ROTARY

The documents governing rotary switches are as follows:

1. MIL-S-6746B, Revised 20 June 1963, "Switch, Rotary, Shielded, Aircraft Ignition"
2. MIL-S-6807D, Revised 25 September 1968, "Switch, Rotary, Selector Power, General Specification for"

#### MIL-S-6746B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

2. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

3. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required

inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

4. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

5. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by

minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-S-6807D

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary

warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.



## SWITCH, THERMOSTATIC

The document governing thermostatic switches is as follows:

MIL-S-24236B, Supplement 1 dated 25 August 1972, "Switch, Thermostatic (Metallic and Bimetallic), General Specification for"

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly,

service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### SWITCH, TOGGLE

The documents governing toggle switches are as follows:

1. MIL-S-3950E, Supplement 1A dated 24 July 1972, "Switch, Toggle, Environmentally Sealed, General Specification for"
2. MIL-S-8834C(ASG), Supplement 1 dated 15 August 1969, "Switch, Toggle, Positive Break, Aircraft, General Specification for"
3. MIL-S-9419D, Amendment 1 dated 10 August 1972, "Switch, Toggle, Momentary, Four-Position ON, Center OFF"

#### MIL-S-3950E

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are

not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Electromagnetic Interference. The individual equipments shall meet the electromagnetic interference requirements of MIL-STD-461A.

6. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

7. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

8. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

9. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and

maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

10. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### MIL-S-8834C

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-S-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval

from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-S-9419D

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary



warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3.x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

## TERMINALS

The documents governing aircraft wire terminals are as follows:

1. MIL-T-7099D, Amendment 3 dated 23 August 1971, "Terminals, Lug and Splice, Crimp-Style, Aluminum, For Aluminum Aircraft Wire"
2. MIL-T-7928F, Supplement 1A dated 19 July 1971, "Terminals, Lug and Splice, Connector, Crimp-Style, Copper, General Specification for"

## MIL-T-7099D

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall

helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for

these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-T-7928F

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for

electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

#### WIRE

The documents governing aircraft wire are as follows:

1. MIL-W-5086B, Interim Amendment 2 dated 16 December 1970, "Wire, Electric, Hookup and Interconnecting, Polyvinyl Chloride-Insulated, Copper or Copper Alloy Conductor"
2. MIL-W-5846B, Interim Amendment 5 dated 26 May 1972, "Wire, Electrical, Chromel and/or Alumel, Thermocouple"
3. MIL-W-7072B(ASG), Revised 4 September 1962, "Wire, Electric, 600-Volt, Aluminum, Aircraft, General Specification for"
4. MIL-W-8777C(ASG), Revised 11 April 1968, "Wire, Electrical, Silicone-Insulated, Copper, 600-Volt, 200°C"
5. MIL-W-16878D (Navy), Amendment 1 dated 15 June 1967, "Wire, Electrical, Insulated, High Temperature"
6. MIL-W-22759C, Interim Amendment 1 dated 20 November 1970, "Wire, Electric, Fluorocarbon-Insulated, Copper or Copper Alloy"
7. MIL-W-25038D, Revised 10 January 1972, "Wire, Electrical, High Temperature and Fire Resistant, Aircraft"
8. MIL-W-81044A(AS), Amendment 4 dated 30 November 1970, "Wire, Electric, Cross-Linked, Polyalkene Insulated, Copper"
9. MIL-W-81381(AS), Amendment 5 dated 12 November 1970, "Wire, Electric, Polyimide-Insulated, Copper and Copper Alloy"

#### MIL-W-5086B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500



regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel,

and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.

- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-W-5846B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of

these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

7. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

8. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-W-7072B

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing.

Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-W-8777C

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3.x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3.x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by



personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability

and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4.x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-W-16878D

The SDG information for this document is as follows:

1. Paragraph 3.x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3.x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-1-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the

system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

10. Paragraph 4. x, add the following:

Component Sampling. Sampling shall be accomplished in accordance with the procedures established in MIL-STD-105.

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by

personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability

and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-W-25038D

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours / flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on



the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to commencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-W-81044A

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by

personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability

and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.

MIL-W-81381

The SDG information for this document is as follows:

1. Paragraph 3. x, add the following:

Interchangeability. Like assemblies, subassemblies, and replaceable parts shall meet the requirements of MIL-I-8500 regardless of manufacturer or supplier. Items which are not functionally interchangeable shall not be physically interchangeable unless specifically approved by the procuring activity.

2. Paragraph 3. x, add the following:

Safety. Systems and components shall be designed to provide a maximum of safety to personnel during the course of installation and preflight testing. Adequate precautionary warnings and information shall be affixed to components when considered essential. Precautionary warnings and information shall also be available in the system or component operating instructions used for preflight testing. Provisions shall be made to prevent personnel from being accidentally subjected to injurious voltages or currents, temperatures, or movements of components. Safety requirements shall be in accordance with MIL-STD-882.

3. Paragraph 3. x, add the following:

Reliability. Reliability of equipment furnished under this specification shall be that which is necessary to achieve the required mission and system reliability of the overall helicopter. Equipment installation shall provide for standardization and simplicity of operation as long as reliability is not adversely affected. Reliability requirements shall be in accordance with MIL-STD-785, and as specified in the detail specification.

4. Paragraph 3. x, add the following:

Maintainability. The availability and maintenance man-hours/flight hour required of the electrical system or components shall be that which is necessary to achieve the required inherent and achieved availability of the overall helicopter. The item shall be capable of disassembly, reassembly, service maintenance, and inspection with Federally stocked tools and equipment. Designs requiring specially designed maintenance tools and equipment shall be avoided. The item shall be constructed so that adjustments and repairs of field-adjustable components can easily be made by personnel of operating units and overhaul bases. The equipment shall meet the requirements of MIL-STD-473.

5. Paragraph 3. x, add the following:

Human Engineering. Human engineering design criteria and principles shall be applied in the design of electrical equipment so as to achieve safe, reliable, and effective performance by operator, maintenance, and control personnel, and to optimize personnel skill requirements and training time. MIL-H-46855 and MIL-STD-1472 shall be utilized as guidelines in applying human engineering design criteria for electrical equipment. Quantitative human engineering requirements shall be as specified in the contract or in the end-item/system development description or specification.

6. Paragraph 4. x, add the following:

Responsibility for Inspection. The supplier shall implement an inspection program in accordance with MIL-I-45208.

7. Paragraph 4. x, add the following:

Rejection and Retest. Items failing initial qualification tests, retests, or random sampling tests must be analyzed to ascertain the failure cause and its projected impact on the design. Those failures that necessitate redesign of the

system or components, or require additional or special test procedures should be identified and furnished to the procuring activity. Complete failure analysis data and recommendations including engineering change proposal (ECP) packages should be forwarded to the procuring activity. Retests for these items should not recommence until approval is received from the procuring agency.

Failures that have been categorized as being random, caused by test procedural errors or failures that can be remedied by minor modifications can be retested without formal approval from the procuring agency. The procuring agency reserves the right to request ECP packages prior to recommencement of these tests if deemed to be necessary. The results of these tests, modifications and recommendations for further action, if necessary, shall be forwarded to the procuring agency at the completion of these tests.

8. Paragraph 4. x, add the following:

Reliability and Maintainability Demonstration. Tests shall be performed to show that the system can meet the reliability and maintainability guarantees. The reliability and maintainability demonstration shall be performed in accordance with an approved test plan before a Government witness.

- a. Test Plan. To document test conditions and end points to be met during demonstration, a reliability and maintainability test plan shall be prepared and forwarded to the procuring agency for approval.
- b. Acceptance Criteria. The quantitative reliability and maintainability requirements have been met if the maximum permissible values of failure rates, downtime, and maintenance man-hours stipulated in the detailed system specification have not been exceeded.

9. Paragraph 4. x, add the following:

Quality Assurance Requirements. The quality assurance requirements of equipment furnished by this specification shall be in accordance with the requirements of MIL-Q-9858.